in spite of remaining plasma-cell dysplasia, and since we failed to detect M protein during the patient's hospital course, these plasma cells were not regarded as a neoplasm. It was suggested that leukemic cells with CD19 surface antigen had an Ig heavy-chain gene rearrangement.

In summary, it is suggested that the 3;21 translocation might not rarely be detected also in de novo leukemia and might be associated with B-lymphoid features and plasma cell dysplasia.

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Hematologic Benefits of 1-Hydroxyvitamin D_3 in an Elderly Patient With Chronic Myelodysplastic Syndrome

To the Editor: Myelodysplastic syndromes (MDS) represent a heterogeneous group of preleukemic disorders, characterized by advanced age-of-onset and peripheral cytopenias [1]. Among clinical treatments, it has been generally thought that 1,25-dihydroxyvitamin D_3 acts to induce differentiation of blast cells in MDS, and that a high dose of 1,25-dihydroxyvitamin D_3 produces hypercalcemia [2–4]. We present a patient with MDS who exhibited an elevation of a previously low platelet count and hemoglobin level after the administration of a low dose of 1-hydroxyvitamin D_3, such as used in treatment of osteoporosis.

A 70-year-old Japanese woman was admitted to our hospital with purpura on March 3, 1995. Platelet count was $1.0 \times 10^4/\mu l$, hemoglobin level was 8.7 g/dl, and mean corpuscular volume (MCV) was 107.7 fl. The reticulocyte count was $9.2 \times 10^4/\mu l$, and no nucleated red blood cells were found. Examination of a bone-marrow aspirate revealed normocellular marrow with degranulated granulocytes and pseudo-Pelger-Huët anomalies. Blasts constituted 2.4% of all nucleated cells. No chromosomal abnormalities were observed in 20 metaphase cells. Biochemical evaluation showed elevated serum levels of LDH (529 IU/l), hemoglobin-F (1.4%), ferritin (99 ng/ml), and folic acid (11.7 ng/ml), with a normal serum level of vitamin B12 (690 pg/ml). Indirect bilirubin was 0.8 mg/dl. Combs test was negative. The patient was seropositive for the surface antigen of the hepatitis B virus. The level of platelet-associated IgG (PAIgG) was markedly elevated (138.6 $ng/10^7$ cells). Refractory anemia was diagnosed according to the FAB classification. Because of the patient's advanced age and seropositivity for hepatitis B virus, she was administrated only 1 μg of 1-hydroxyvitamin D_3 per day. The bicytopenia improved gradually without any side effects: the platelet count rose to $5.4 \times 10^4/\mu l$ and the hemoglobin to 11.1 g/dl, over 10 weeks, and the purpura disappeared. Serum levels of LDH and indirect bilirubin were reduced to 383 IU/l and 0.3 mg/dl, respectively. The PAIgG was reduced to 55.9 $ng/10^7$ cells. On continued treatment for 9 months, the platelet count was maintained at about $5.0 \times 10^4/\mu l$, and the hemoglobin at about 11 g/dl (Fig. 1). A bone-marrow aspirate performed

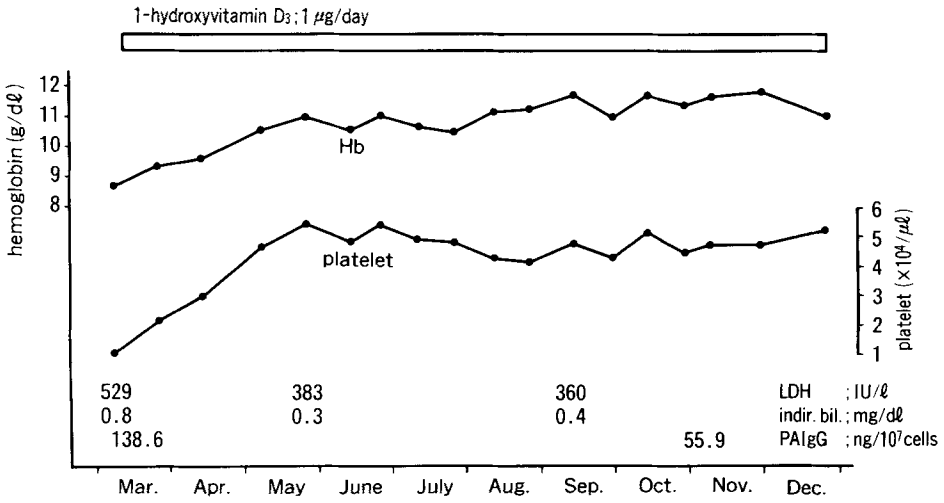

Fig. 1. Clinical course during treatment with 1-hydroxyvitamin D_3. Changes in LDH, indirect bilirubin, and platelet-associated IgG are shown at bottom.

on September 27 showed no significant changes in cellularity or the myelogram. On September 27, we evaluated the serum concentration of 1,25-dihydroxyvitamin D_3 in this patient before and 1–6 h after the administration of a single oral dose of 1 μg. Serum concentrations of this agent ranged from 19–30 pg/ml.

In the present case, the effects of this drug may not be due to induction of differentiation of blasts. We considered that the underlying stem-cell abnormality was unaffected, as the erythrocyte count increased as did the MCV. The increase in MCV and the lack of an increase in monocytes suggest that this agent improved the hematological findings via some other mechanism. The normalization of LDH and indirect bilirubin suggested a decrease in RBC integration. On the other hand, the increase in platelet count was related to a decrease in PAIgG, so that the drug may have acted as a immunosuppressor [5] in this case.

We conclude that the adminisration of a low dose of 1-hydroxyvitamin D_3 may be beneficial in treating elderly patients with chronic myelodysplastic syndromes, without serious adverse effects.

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Parathyroid Hormone-Related Protein-Associated Hypercalcemia in Probable Intravascular Lymphoma of B-Cell Type

To the Editor: Humoral hypercalcemia of malignancy (HHM) is well-recognized as a pathological condition caused by humoral mediators produced by malignancies. Parathyroid hormone related protein (PTH-rp) is one of the major causative factors in HHM. We present a case of large-cell lymphoma of B-cell type, i.e., probable intravascular malignant lymphoma (IVL), presenting with HHM with elevated serum PTH-rp concentration.

A previously healthy 64-year-old woman presented with a 2-month history of recurrent seizures and progressive mental deterioration. She was hospitalized in February 1994. On admission, she was lethargic and delirious. She had left hemiparesis and positive Babinski-sign. There was no lymphoadenopathy or skin lesions. Serial cranial CT scans disclosed

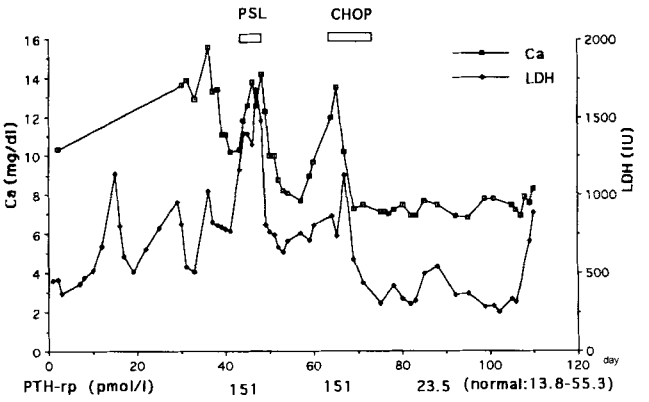

Fig. 1. Clinical course of the patient.

transitional multiple low-density areas in the cerebrum. Blood count was unremarkable. Serum electrolytes were normal, including serum calcium concentration of 10.3 mg/dl. Lactate dehydrogenase (LDH) was elevated (459 IU/l). She was seronegative for HTLV-I and HIV. Subsequently, the patient became unconscious. In March, elevated serum calcium concentration was noted (13.1 mg/dl). PTH-rp was also elevated (151 pg/ml; normal, 13.8–55.3 pg/ml). PTH (intact) was decreased (6 pg/ml; normal, 10–60 pg/ml). 1-25$(OH)_2$ vitamin D, TNFα, IL-1α, and IL-1β were not elevated. Gallium scintigraphy disclosed high uptake in the right supraclavical ectopic bone formation. Both aspiration smears from the ectopic bone and blood bone marrow revealed atypical large lymphoid cell infiltration. These cells were positive for CD45 (LCA) and CD20 (L26), but negative for CD45R0 (UCHL-1). There was no splenohepatomegaly or lymphoadenopathy on CT scan or echo sonography. Muscle biopsy was unremarkable. Large B-cell lymphoma (putative IVL) was diagnosed.

The patient was initially treated with high doses of predonine (1,000 mg/day for 3 days), and she subsequently received a regimen of chemotherapy (cyclophosphamide, doxorubicin, vincristine, and prednisolone: CHOP). The serum calcium level, LDH, and PTH-rp decreased to within normal range (Fig. 1). However, the patient became apallic, and died of pneumonia 40 days after chemotherapy.

At autopsy, there were widespread necroses in the cerebrum. No arteriosclerosis, thrombosis, or vascular wall destruction was noted. There was no lymphoma-cell infiltration in any organ, including the cerebrum, lung, adrenal glands, and bone marrow.

IVL is a rare disease, characterized by intravascular proliferation of lymphoma cells, which predominantly affects the central nervous system (CNS) or skin, and occasionally bone marrow [1]. The immunohistochemical properties of proliferative lymphoma cells primarily indicate B-cell lineage [1,2]. In our case, postmorten examination disclosed widespread necroses in the CNS. However, no vascular change or lymphoma cells were detected at autopsy. We speculate that the CNS lesions were due to vascular occlusion by lymphoma cells, and partial or complete remission was induced by regimen of chemotherapy as previous reported for patients with IVL treated with aggressive combination chemotherapy [2].

Serum PTH-rp concentrations are often increased in hypercalcemic patients with solid cancers such as squamous cell carcinoma, or adult T-cell lymphoma-leukemia, but rarely in B-cell lymphoma. To date, only two cases with IVL have presented with HHM [3,4]. However, the exact cause of hypercalcemia in those patients with IVL was unclear. In our case, serum calcium, LDH, and PTH-rp concentrations responded dramatically to chemotherapy. This rare case represents another PTH-rp-producing B-cell lymphoma.

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